

# Voltage Controlled Oscillator

# MOS-2133-219+

5V Tuning for PLL IC's 2033 to 2133 MHz

## Features

- Linear tuning characteristics
- Low phase noise
- Low pulling
- Low pushing
- Aqueous washable



CASE STYLE: CZ682  
PRICE: \$ 20.45 ea. QTY (5-49)

## Applications

- Wireless communications
- Broadcast service

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

## Electrical Specifications

MODEL NO.	FREQ. (MHz)		POWER OUTPUT (dBm)	PHASE NOISE dBc/Hz SSB at offset frequencies, kHz				TUNING					NON HARMONIC SPURIOUS (dBc)	HARMONICS (dBc)		PULLING pk-pk @ 12 dB (MHz)	PUSHING (MHz/V)	DC OPERATING POWER				
	Min.	Max.		Typ.	1	10	100	1000	VOLTAGE RANGE (V)		SENSI-TIVITY (MHz/V)	PORT CAP (pF)		3 dB MODULATION BANDWIDTH (MHz)	Typ.			Typ.	Typ.	Typ.	Vcc (volts)	Current (mA)
	Min.	Max.							Min.	Max.												
MOS-2133-219+	2033	2133	+2.5	-78	-103	-124	-144	0.5	5	35	41	18	200	-90	-21	-13	0.2	0.5	5	40		

## Pin Connections

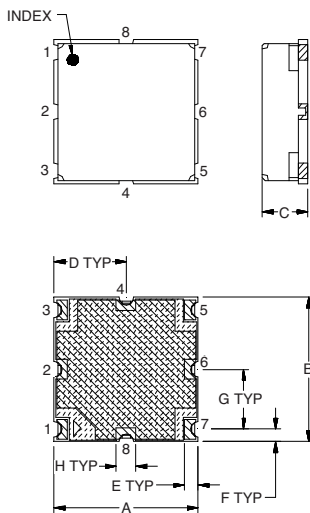
RF OUT	5
VCC	3
V-TUNE	1
GROUND	2,4,6,7,8

## Maximum Ratings

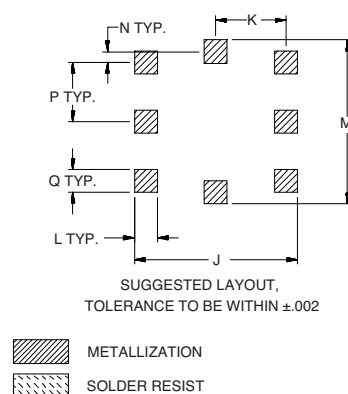
Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	6.5V
Absolute Max. Tuning Voltage (Vtune)	7.0V
All specifications	50 ohm system

Permanent damage may occur if any of these limits are exceeded.

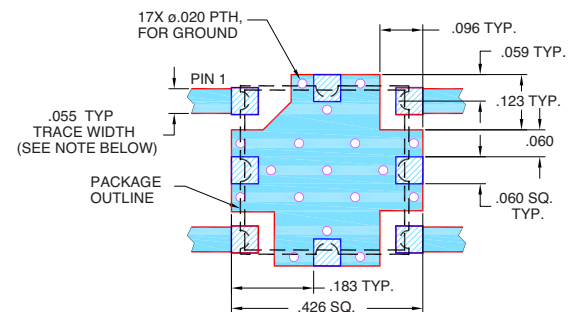
## Outline Drawing



## PCB Land Pattern



## Demo Board MCL P/N: TB-128 Suggested PCB Layout (PL-023)



- NOTES:**
1. TRACE WIDTH IS SHOWN FOR RF4 WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
    - DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
    - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	WT
.375	.375	.131	.188	.035	.033	.154	.050	.425	.183	.060	.425	.028	.154	.060	GRAM
9.52	9.52	3.33	4.77	0.89	0.84	3.91	1.27	10.80	4.65	1.52	10.80	0.71	3.91	1.52	0.60



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IF/RF MICROWAVE COMPONENTS

For detailed performance specs & shopping online see web site

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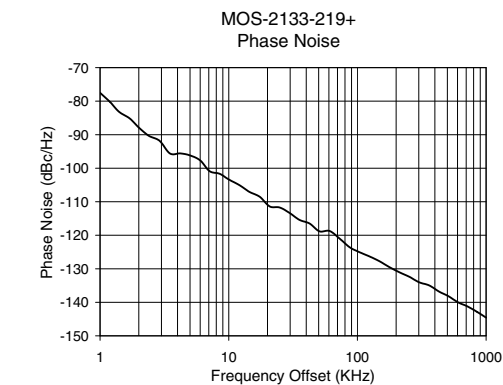
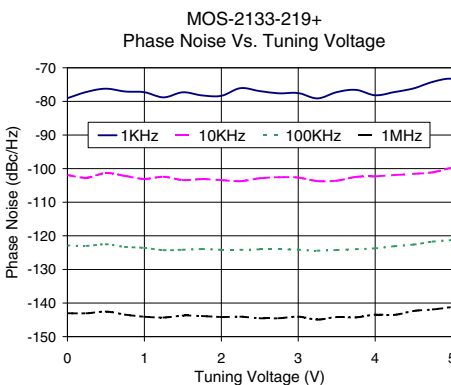
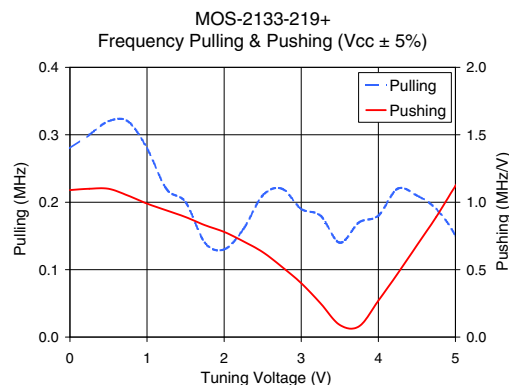
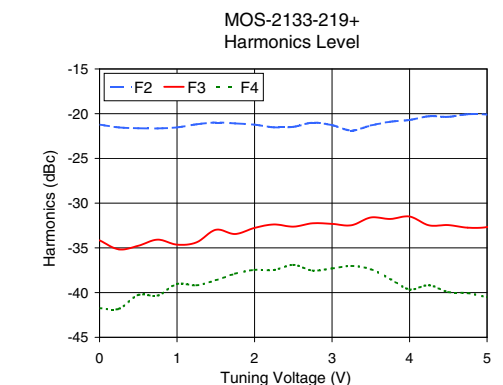
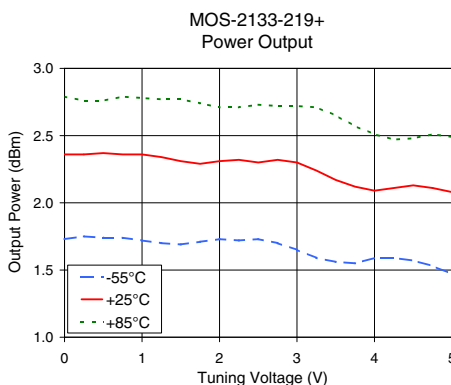
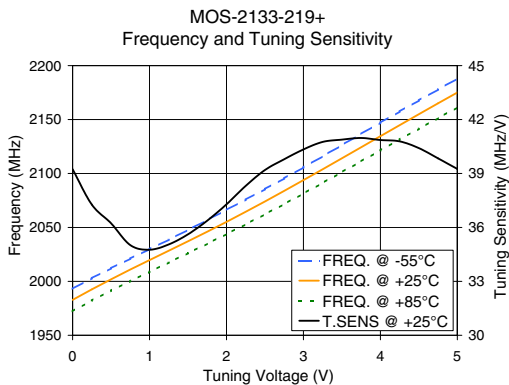
REV. A  
M123576  
EDR-7936/2  
MOS-2133-219+  
RAV  
090816  
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# Performance Data & Curves\*

# MOS-2133-219+

V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			Icc (mA)	HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ. PULL (MHz)	PHASE NOISE (dBc/Hz) at offsets				FREQ OFFSET (KHz)	PHASE NOISE at 2083 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	39.24	1993.1	1982.8	1972.3	1.73	2.36	2.79	32.85	-21.2	-34.2	-41.7	1.09	0.28	-79.0	-101.9	-122.9	-143.0	1.0	-77.51
0.50	36.23	2012.2	2001.9	1991.4	1.74	2.37	2.76	33.03	-21.6	-34.8	-40.3	1.10	0.32	-76.2	-101.3	-122.5	-142.6	2.0	-87.86
0.75	35.01	2021.1	2011.0	2000.2	1.74	2.36	2.79	33.15	-21.7	-34.1	-40.3	1.05	0.32	-77.1	-102.2	-123.3	-143.5	3.5	-95.62
1.00	34.76	2029.9	2019.7	2008.8	1.72	2.36	2.78	33.26	-21.5	-34.6	-39.0	0.99	0.28	-77.3	-103.1	-123.6	-144.1	6.0	-97.68
1.25	35.06	2038.7	2028.4	2017.5	1.70	2.34	2.77	33.36	-21.2	-34.4	-39.2	0.94	0.22	-78.8	-102.4	-124.3	-144.3	8.5	-101.66
1.50	35.62	2047.7	2037.2	2026.2	1.69	2.31	2.77	33.45	-21.0	-33.0	-38.6	0.89	0.20	-77.3	-103.4	-124.1	-143.7	10.0	-103.37
1.75	36.38	2056.8	2046.1	2034.9	1.71	2.29	2.74	33.54	-21.1	-33.5	-37.9	0.83	0.14	-78.2	-103.1	-123.9	-143.9	20.8	-111.40
2.00	37.29	2066.2	2055.2	2043.8	1.73	2.31	2.71	33.62	-21.2	-32.8	-37.5	0.78	0.13	-78.3	-103.4	-124.2	-144.2	35.5	-115.43
2.25	38.31	2075.7	2064.5	2052.9	1.72	2.32	2.71	33.70	-21.5	-32.4	-37.5	0.71	0.16	-76.1	-103.7	-124.2	-144.1	60.7	-118.72
2.50	39.19	2085.5	2074.1	2062.2	1.73	2.30	2.73	33.78	-21.5	-32.6	-36.9	0.63	0.21	-76.9	-102.9	-124.0	-144.5	86.7	-123.53
2.75	39.79	2095.5	2083.9	2071.7	1.70	2.32	2.72	33.86	-21.0	-32.3	-37.5	0.52	0.22	-77.6	-102.6	-124.1	-144.5	100.0	-124.78
3.00	40.34	2105.7	2093.8	2081.4	1.65	2.30	2.72	33.95	-21.3	-32.3	-37.3	0.40	0.19	-77.5	-102.7	-124.1	-144.1	148.1	-127.74
3.25	40.76	2115.9	2103.9	2091.3	1.59	2.24	2.71	34.03	-21.9	-32.5	-37.0	0.25	0.18	-79.1	-103.7	-124.4	-144.9	177.0	-129.50
3.50	40.89	2126.3	2114.1	2101.3	1.56	2.17	2.65	34.09	-21.3	-31.6	-37.4	0.09	0.14	-77.2	-103.6	-124.2	-144.2	211.6	-131.04
3.75	40.98	2136.7	2124.3	2111.3	1.55	2.12	2.57	34.16	-20.9	-31.8	-38.5	0.08	0.17	-76.6	-102.5	-124.0	-144.3	302.4	-134.04
4.00	40.86	2147.1	2134.6	2121.4	1.59	2.09	2.51	34.22	-20.7	-31.5	-39.6	0.27	0.18	-78.2	-102.3	-123.7	-143.5	361.5	-134.97
4.25	40.79	2157.5	2144.8	2131.5	1.59	2.11	2.47	34.27	-20.3	-32.5	-39.2	0.47	0.22	-77.2	-101.9	-123.1	-143.5	507.5	-138.15
4.50	40.41	2167.8	2155.0	2141.5	1.57	2.13	2.48	34.31	-20.4	-32.5	-39.9	0.68	0.21	-76.1	-101.6	-122.6	-142.4	606.7	-140.02
4.75	39.84	2178.0	2165.1	2151.4	1.53	2.11	2.51	34.35	-20.1	-32.7	-40.1	0.89	0.19	-74.2	-101.1	-121.7	-141.9	851.6	-142.88
5.00	39.26	2188.0	2175.0	2161.2	1.47	2.08	2.49	34.39	-20.1	-32.7	-40.5	1.12	0.15	-73.3	-99.8	-121.3	-141.2	1000.0	-144.58

\*at 25°C unless mentioned otherwise



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